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EXAMINER

NGUYEN, LUONG TRUNG

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 09/11/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
**09/434,703**

Applicant(s)  
**Bodnar et al.**

Examiner  
**Luong Nguyen**

Art Unit  
**2612**



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jun 24, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-68 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 12; 15 6) ☐ Other:

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## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-68 filed on 6/24/2002 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 41-68 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 41 (line 12) recites the limitation "said" in "said sensor information". There is insufficient antecedent basis for this limitation in the claim.

Claims 42-68 are rejected as being dependent on claim 41.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

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has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 21, 23, 28-29, 41, 43-44, 48-49, 61-64, 66 are rejected under 35 U.S.C. 102(e) as being anticipated by Acharya et al. (US 6,348,929).

Regarding claim 21, Acharya ('929) disclose a method for scaling of an image, comprising recording sensor information at a first device (the original CFA of the scene 740 captured by the camera 730 are recorded in memory 734, figures 6-7, column 7, lines 20-30); compressing said sensor information prior to color processing, for generating compressed sensor information at the first device (captured images are compressed by an image compression circuit 732, figures 6-7, column 13, lines 35-40); without performing color processing at the first device, transmitting said compressed sensor information to a second device (the compressed images are transferred to computer system 710, figures 6-7, column 14, lines 34-40); decompressing said compressed sensor information at the second device, whereupon said sensor information may thereafter be processed into color image (figure 7, column 14, lines 41-54).

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Regarding claims 23, 43, Acharya ('929) disclose wherein said sensor information comprises light-level information for representing an image the has been digitally recorded at the first device (column 11, lines 15-29).

Regarding claims 28, 48, Acharya ('929) disclose wherein said transmitting step includes transmitting said compressed sensor information in a wire-base manner (bus 660, figure 6).

Regarding claims 29, 49, Acharya ('929) disclose wherein said transmitting step includes transmitting said compressed sensor information using a serial communication port (I/O port 717, figure 7).

Regarding claim 41, Acharya ('929) disclose a method for scaling of an image, comprising an imager (camera 730, figure 7, column 13, lines 30-40, column 14, lines 20-40); compressor module for compressing said luminosity information, for generating compressed luminosity at the imager without having performed color processing (captured images are compressed by an image compression circuit 732, figures 6-7, column 13, lines 35-40); a communication link (bus 660, figure 6); a decompression module for decompressing said compressed luminosity information at the target device, whereupon said sensor information may thereafter be processed into color image (figure 7, column 14, lines 41-54).

Regarding claim 44, Acharya ('929) discloses a generic binary compression module (compression unit 630, figure 6, column 13, lines 4-10).

Regarding claim 61, Acharya ('929) discloses a digital camera (digital camera 730, figure 7, column 13, lines 30-35).

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Regarding claim 62, Acharya ('929) discloses a desktop computer (computer 730, column 14, lines 55-60).

Regarding claim 63, Acharya ('929) discloses a server computer (computer 730, column 14, lines 55-60).

Regarding claim 64, Acharya ('929) discloses CMOS image sensor (CMOS imaging device, column, lines 56-58).

Regarding claim 66, Acharya ('929) discloses gray-scale luminosity information (intensity 0 to 255, column 8, lines 18-20).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3-14, 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,348,929) in view of Wang et al. (US 5,682,152) further in view of Acharya (US 6,392,699).

Regarding claim 1, Acharya ('929) disclose a method for scaling of an image, comprising recording luminosity information at a first device (the original CFA of the scene 740 captured by the camera 730 are recorded in memory 734, figures 6-7, column 7, lines 20-30); without performing color interpolation at the first device, generating compressed luminosity information at

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the first device (figures 6-7, column 11, lines 14-28, column 13, lines 30-40); transmitting said compressed luminosity information to a second device (the compressed images are transferred to computer system 710, figures 6-7, column 14, lines 34-40); restoring said luminosity information from said compressed luminosity information at the second device (figure 7, column 14, lines 41-54); converting said luminosity information at the second device into a color image ((figure 7, column 14, lines 41-54).

Acharya ('929) fail to specifically disclose applying a wavelet transform, quantization, and compression the luminosity information. However, Wang et al. teach a compression algorithm includes a transform stage which uses a wavelet transform algorithm; a quantization stage (column 1, lines 45-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929) by the teaching of Wang et al. in order to provide an improved lossy compression algorithm that is particularly efficient for compressing graphics images (col. 1, lines 39-42).

Acharya ('929) and Wang et al. fail to include performing color interpolation at the second device. However, Acharya ('699) discloses an integrated color interpolation and color space conversion technique and apparatus in which the color interpolation may be achieved in a software application running on computer system 710 rather than directly in camera 730 (figure 6, column 11, lines 58- 61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929) and Wang et al. by the teaching of Acharya ('699) in order to reduce the components of the camera. This makes the cost of the camera lower and the camera is smaller.

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Regarding claim 3, Acharya ('929) disclose wherein said sensor information comprises light-level information for representing an image the has been digitally recorded at the first device (column 11, lines 15-29).

Regarding claim 4, Acharya ('929) discloses applying generic binary compression (compression unit 630, figure 6, column 13, lines 4-10).

Regarding claim 5, Wang et al. disclose run-length encoding (see abstract).

Regarding claim 6, Wang et al. disclose Huffman coding (see abstract).

Regarding claim 7, Wang et al. disclose reversing said compression that occurred at the first device (column 14, lines 41-50).

Regarding claim 8, Acharya ('929) disclose wherein said transmitting step includes transmitting said compressed luminosity information in a wire-base manner (bus 660, figure 6).

Regarding claim 9, Acharya ('929) disclose wherein said transmitting step includes transmitting said compressed sensor information using a serial communication port (I/O port 717, figure 7).

Regarding claim 10, Acharya et al. ('929) and Wang et al. fail to specifically disclose interpolating color information for the image from said luminosity information. However, Acharya ('699) discloses an integrated color interpolation and color space conversion technique and apparatus in which the color interpolation may be achieved in a software application running on computer system 710 rather than directly in camera 730 (figure 6, column 11, lines 58- 61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929) and Wang et al. by the teaching of Acharya

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('699) in order to reduce the components of the camera. This makes the cost of the camera lower and the camera is smaller.

Regarding claim 11, Acharya ('929), Wang et al. and Acharya ('699) fail to specifically disclose apply a YUV transformation at the second device for converting said sensor into a color image in YUV color space. However, it is well-known in the art to apply a YUV transformation at the second device such as computer for converting said sensor into a color image in YUV color space in order to display image.

Regarding claim 12, Acharya ('699) discloses converting the color image into a standard file format at the second device (the compressed and scaled image may be achieved using processor 712 and memory 711 which is used to store/load instruction addressed and result data, figure 7, column 13, line 59 - column 14, line 10. This shows that image data is stored in a file format).

Regarding claims 13-14, Acharya ('929), Wang et al. and Acharya ('699) fail to specifically disclose a JPEG file format and applying JPEG compression. However, it is well-known in the art to store a compression image using JPEG file format. This can achieve a higher compression ratio.

As for claims 18-20, Acharya ('929), Wang et al. and Acharya ('699) fail to specifically disclose transmitting said compressed sensor information by first transmitting a lower-quality representation of the image recorded at the first device. However, Acharya ('929) discloses compressed signals could be downloaded to the computer (figure 7). It would have been obvious

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that lower-quality image is converted into higher-quality image in order to let the user could see a higher quality on the display.

9. Claims 2, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,348,929) in view of Wang et al. (US 5,682,152) and Acharya (US 6,392,699) further in view of Fukuoka (US 5,754,227).

Regarding claims 2, Acharya ('929), Wang et al. and Acharya ('699) fail to specifically disclose wherein said transmitting step is performed in a wireless manner. However, Fukuoka teaches images captured by the camera can be transferred through the I/O card 15 which functions as modem connected to an on-line service such as American On Line (column 3, lines 50-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929), Wang et al. and Acharya ('699) by the teaching of Fukuoka in order to transmit the image to a remote device without using cable.

Regarding claims 15-16, Acharya ('929), Wang et al. and Acharya ('699) fail to specifically disclose transmitting said compressed luminosity information using a packet-based communication protocol, and selectively connecting the digital camera to a cellular phone from establishing a wireless communication session with the computer. However, Fukuoka teaches images captured by the camera can be transferred through the I/O card 15 which functions as modem connected to an on-line service such as American On Line, and the communication is a type of communication protocol (column 3, lines 50-60, column 7, lines 24-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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modify the device in Acharya ('929), Wang et al. and Acharya ('699) by the teaching of Fukuoka in order to transmit the image to a remote device without using cable.

Regarding claim 17, Acharya ('929), Wang et al. and Acharya ('699) fail to specifically disclose wherein said second device comprises a computer with connectivity to the Internet. However, Fukuoka discloses computer connect to Internet (American On Line, col. 3, lines 55-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929), Wang et al. and Acharya ('699) by the teaching of Fukuoka in order to makes the color image available to multiple users.

10. Claims 22, 35-37, 42, 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,348,929) in view of Fukuoka (US 5,754,227).

Regarding claims 22, 35, 42, Acharya ('929) fail to specifically disclose wherein said transmitting step is performed in a wireless manner. However, Fukuoka teaches images captured by the camera can be transferred through the I/O card 15 which functions as modem connected to an on-line service such as American On Line (column 3, lines 50-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929) by the teaching of Fukuoka in order to transmit the image to a remote device without using cable.

Regarding claim 36, 55, 56, Acharya ('929) discloses a digital camera (digital camera 730, figure 7); computer (computer 710, figure 7). Fukuoka discloses cellular phone device (cellular phone, figure 3, column 5, lines 40-45).

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Regarding claim 37, 57, Acharya ('929) to specifically disclose wherein said second device comprises a computer with connectivity to the Internet. However, Fukuoka discloses computer connect to Internet (American On Line, col. 3, lines 55-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929) by the teaching of Fukuoka in order to makes the color image available to multiple users.

11. Claims 24-27, 45-47, 67-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,348,929) in view of Wang et al. (US 5,628,152).

Regarding claims 24, 67-68, Acharya ('929) disclose applying compression to the transformed sensor image, to create said compressed sensor information at the first device (figures 6-7, column 11, lines 14-20). Acharya et al. fail to specifically disclose wherein said compression step includes applying a wavelet transform to the sensor image. However, Wang et al. teach a compression algorithm includes a transform stage which uses a wavelet transform algorithm (column 1, lines 55-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929) by the teaching of Wang et al. in order to provide an improved lossy compression algorithm that is particularly efficient for compressing graphics images (col. 1, lines 39-42).

Regarding claims 25, 45, Wang et al. disclose run-length encoding (see abstract).

Regarding claims 26, 46, Wang et al. disclose Huffman coding (see abstract).

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Regarding claims 27, 47, Wang et al. disclose wherein said decompression step includes reversing said wavelet transform that occurred at the first device (column 14, lines 41-50).

12. Claims 30-34, 50-54, 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,348,929) in view of Acharya (US 6,392, 699).

Regarding claims 30, 50, Acharya ('929) fail to specifically disclose converting sensor information into color by interpolating color information. However, Acharya ('699) discloses an integrated color interpolation and color space conversion technique and apparatus in which the color interpolation may be achieved in a software application running on computer system 710 rather than directly in camera 730 (figure 6, column 11, lines 58- 61). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device in Acharya ('929) by the teaching of Acharya ('699) in order to reduce the components of the camera. This makes the cost of the camera lower and the camera is smaller.

Regarding claims 31, 51, Acharya ('929) and Acharya ('699) fail to specifically disclose apply a YUV transformation at the second device for converting said sensor into a color image in YUV color space. However, it is well-known in the art to apply a YUV transformation at the second device such as computer for converting said sensor into a color image in YUV color space in order to display image.

Regarding claims 32, 52, Acharya ('699) discloses converting the color image into a standard file format at the second device (the compressed and scaled image may be achieved using processor 712 and memory 711 which is used to stored/load instruction addressed and result data,

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figure 7, column 13, line 59 - column 14, line 10. This shows that image data is stored in a file format).

Regarding claims 33-34, 53-54, Acharya ('929) and Acharya ('699) fail to specifically disclose a JPEG file format and applying JPEG compression. However, it is well-known in the art to store a compression image using JPEG file format. This can achieve a higher compression ratio.

As for claims 58-60, Acharya ('929) and Acharya ('699) fail to specifically disclose transmitting said compressed sensor information by first transmitting a lower-quality representation of the image recorded at the first device. However, Acharya ('929) discloses compressed signals could be downloaded to the computer (figure 7). It would have been obvious that lower-quality image is converted into higher-quality image in order to let the user could see a higher quality on the display.

13. Claims 38-40, 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (US 6,348,929).

As for claims 38-40, Acharya ('929) fail to specifically disclose transmitting said compressed sensor information by first transmitting a lower-quality representation of the image recorded at the first device. However, Acharya ('929) discloses compressed signals could be downloaded to the computer (figure 7). It would have been obvious that lower-quality image is converted into higher-quality image in order to let the user could see a higher quality on the display.

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Regarding claim 65, Acharya ('929) fail to specifically disclose a CCD image sensor. However, it is well-known in the art to use a CCD image sensor to capture image.

***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Luong Nguyen** whose telephone number is **(703) 308-9297**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reach on **(703) 305-4929**.

**Any response to this action should be mailed to:**

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**or faxed to:**

(703) 872 - 9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,  
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Technology Center 2600 Customer Service Office whose telephone  
number is (703) 306-0377.

LN LN  
9/7/2002

  
WENDY R. GARBER  
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